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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,454	10/07/2005	Yutaka Ikeda	1248-0818PUS1	2348
2292	7590	12/26/2008	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				PATEL, DHAVAL V
ART UNIT		PAPER NUMBER		
2611				
NOTIFICATION DATE		DELIVERY MODE		
12/26/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/552,454	IKEDA ET AL.	
	Examiner	Art Unit	
	DHAVAL PATEL	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 16 October 2008.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 44-47,60,61 and 88 is/are pending in the application.
 4a) Of the above claim(s) 48-59,62-87 and 89-101 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 44-47,60,61 and 88 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 07 October 2008 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date <u>10/7/2005</u>	6) <input type="checkbox"/> Other: _____ .

DETAILED ACTION

1. Examiner has acknowledged the elected claims 44-47, 60, 61 and 88 in response to election/restriction dated 10/16/2008

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 44-47, 60 and 61 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 44, lines 6-10 recites, "the waveform shaping step being such that, when the input signal is a pulse signal for use in a fixed-pulse-width method, the pulse signal being generated through a signal processing carried out with respect to an original pulse signal on which the input signal is based, waveform shaping is carried out by making that pulse width of the input signal which is recognized from the sampling signal closer to a predetermined pulse width, irrespective of the pulse width" however, it is unclear to examiner as to whether the input signal on which the sampling performed is fixed-pulse-width signal or the signal generated after waveform shaping is fixed-

pulse-width signal because claim recites, waveform shaping is to control or adjust the width to a predetermined width. It is unclear to examiner as to whether this predetermined pulse width is fixed width or not.

Claims 46, 47, 60 and 61 are rejected because of dependent upon claim 44 and claim 44 is rejected.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 44-47,60 and 61 are rejected under 35 U.S.C. 101 because the process/method claims (1) must be tied to another statutory class (such as a particular apparatus) or (2) transform underlying subject matter (such as an article or materials) to a different state or thing. For example a method claim that would not qualify as a statutory process would be claim that recited purely mental steps. Thus, to qualify as a § 101 statutory process, the claim should positively recite the other statutory class (the thing or product) to which it is tied, for example by identifying the apparatus that accomplishes the method steps, or positively recite the subject matter that is being transformed, for example by identifying the material that is being changed to a different state.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in **Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966)**, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows: (See MPEP Ch. 2141)

- a. Determining the scope and contents of the prior art;
- b. Ascertaining the differences between the prior art and the claims in issue;
- c. Resolving the level of ordinary skill in the pertinent art; and
- d. Evaluating evidence of secondary considerations for indicating obviousness or nonobviousness.

7. **Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schuppe et al. (US 6,198,766)(hereafter Schuppe) in view of Lee et al. (US 2004/0223545)(hereafter Lee)**

Regarding claim 44, Schuppe discloses a waveform shaping method comprising:
a sampling step for generating a sampling signal by sampling an input signal using a sampling clock which is faster than a data speed of the input signal (Fig. 1, col. 4 lines 40-50 and lines 56-59 discloses infrared transceiver with sampling clock input, 24, the clock input signal is derived from sampling clock and period was six times over the sampling clock rate); and

a waveform shaping step for processing the sampling signal, so that a pulse in the input signal, recognized from the sampling signal, is shaped (Fig. 1, add, chop level

adjust, 8 , pulse adjustor, 11 and pulse detector/width comparator, 12 are construed as pulse shaping part),

the waveform shaping step (Fig. 1) being such that, when the input signal is a pulse signal for use in a fixed-pulse-width method (Fig. 1, processes pulse position modulation encoded input, 1 but could be obvious to have a fixed-pulse-width modulation as described below), the pulse signal being generated through a signal processing carried out with respect to an original pulse signal on which the input signal is based (col. 2 lines 5-11, discloses that pulse widths and noise produced by transceiver outputs have varied in response to distance from the transmitter, by noise (here all these factors are considered as distortion during signal processing which affects the pulse shapes), waveform shaping is carried out by making that pulse width of the input signal which is recognized from the sampling signal closer to a predetermined pulse width, irrespective of the pulse width (col. 5 lines 8-15 discloses pulse or width comparator to compare the contents of input with the predetermined bit patterns and col. 5 lines 18-30 discloses if a pulse does not fall within acceptable range than comparator will output a difference value and pulse adjustor, 11 causing it to output a chop or add amount to bring the stored pulse within acceptable range(construed as within predetermine limit).

But, Schuppe does not explicitly disclose that the input signal is a pulse signal for use in fixed pulse width method.

In the same field of endeavor, Lee teaches that plurality of signal includes fixed-pulse-width electrical signals and a variable-pulse-width signals, and analog component

output includes fixed pulse width analog component output and variable pulse width analog component output generated from the fixed-pulse-width signals and variable pulse-width electrical signals respectively; and the switching circuitry to provide fixed pulse width modulated signal into first channel (page 2, [0015], page 7, claim 19), Furthermore, one of ordinary skilled in the art would easily recognize that pulse width modulation technique could be a fixed pulse width or position or variable pulse or position width modulation. With fixed pulse width, the width of the pulse is modulated with the fix width but the time interval could be different. One of ordinary skilled in the art would easily recognized that that using the pulse shaping method or pulse adjusting method, in case on, distorted fixed pulse width modulated signal can be checked, using the method of Schuppe, for if the distorted fixed pulse width modulated signal does not fall within predetermined range, by adding or chopping amount, can bring the pulse within acceptable range.

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of the invention to apply the method of Schuppe to the fixed pulse width modulated signal of Lee, such that in case, if the received signal is distorted fixed pulse width signal do no fall within predetermined or acceptable range, by adding or chopping the amount of pulse, bring the distorted pulse width to an acceptable range, the motivation is to demodulate the signal in reliable manner and to provide compensation for variation (col. 2 lines 31-35).

8. **Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schuppe and Lee, as applied to claim 44 above, and further in view of Lobo et al. (US 7,274,747) (hereafter Lobo).**

Regarding claim 45, Schuppe and Lee do not explicitly disclose the waveform shaping method, wherein the predetermined pulse width is standardized, irrespective of the pulse width of the input signal, taking into account a level of distortion in the pulse width, the distortion mainly attributed to the signal processing.

In the same field of endeavor, Lobo teaches a method for compensating for nonlinear distortion. Also, col. 11 lines 55-60 teach a particular communication system and provide compensation for distortion using pulse shaping. Furthermore, col 11 lines 55-67 teaches the pulse shaping are looked at the component distortion such as non linearity and error from the values that the particular system requires and amount of pre-distortion to be compensated for are considered.

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of the invention to combine the teachings of Lobo, into the system of Schuppe and Lee, as a whole, so as to consider the distortion parameter into pulse shaping to reduce distortion, the motivation is provide pre-distortion to compensate for distortion introduced by components in the device (col. 1 lines 13-16).

9. **Claim 60 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schuppe and Lee, as applied to claim 44 above and further in view of Shimizu et al. (US 6, 107,850) (hereafter Shimizu).**

Regarding claim 60, Schuppe and Lee do not explicitly disclose the waveform shaping method, wherein: in the waveform shaping step, waveform shaping is carried out by partially inverting bit string of the sampling signal.

in the same field of endeavor, Shumizu teaches output pulse width control system in which as shown in Fig. 4, it discloses pulse width modulating signal and generating the pulse for reducing the pulse width (Fig. 11, 4) and pulse for enlarging pulse width (Fig. 11, 3) and the pulse for enlarging the pulse width is generated through inverter (Fig. 11, 23) to generate inverted pulse signal.

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of the invention to combine the teachings of Shimizu, into the system of Schuppe and Lee, as a whole, so as to generate the inverted bit stream of sampling of Schuppe using the teachings of Shumizu, as a whole, the motivation is to provide efficient pulse width control system.

10. Claim 88 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schuppe and Lee, as applied to claim 44 above, and further in view of Langberg et al. (US 5,852,630) (hereafter Langberg).

Regarding claim 88, Schuppe and Lee discloses all the subject matter except for waveform shaping program for causing a computer to execute steps included in a waveform shaping method,

However, Langberg et al. teaches that the method and apparatus for a transceiver warm start activation procedure with recoding can be implemented in software stored in computer-readable medium. The computer readable medium is an electronic, magnetic, optical or other physical device or means that can be contain or store a computer program for use by or in connection with a computer related system or method (col. 3 lines 51-65). One skilled in the art would have clearly recognized that the method of Schuppe and Lee would have been implemented in software. The implemented software would perform same function of the hardware for less expense, adaptability and flexibility. Therefore, it would have been obvious to one ordinary skilled in the art at the time of the invention was made to use the software as taught by Landberg et al. in the Schuppe and Lee in order to reduce cost and improve the adaptability and flexibility of the communication system.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patel Dhaval whose telephone number is (571) 270-1818. The examiner can normally be reached on M-F 8:30-6:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on (571) 272-3036. Customer Service can be reached at (571) 272-2600. The fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published

Art Unit: 2611

applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Dhaval Patel/

Examiner, Art Unit 2611

12/15/2008

/Shuwang Liu/

Supervisory Patent Examiner, Art Unit 2611